

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section addresses hazardous materials, vectors, wildland fires, and the potential for bird-aircraft strikes.

3.8.1 Affected Environment

3.8.1.1 Lower Colorado River

Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials prepared by a Federal, state, or local agency, and/or if it has characteristics defined as hazardous by such an agency. Chemical and physical properties cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity. These properties are defined in CCR, Title 22, sections 66261.20-66261.24.

A variety of hazardous materials potentially are present throughout the project area. Industries and other entities use many types of hazardous materials, such as fuels and solvents. Numerous fuels, chemicals, and other hazardous materials are also transported via roadways and railways. At typical construction sites, materials that could be considered hazardous include fuels, motor oil, grease, various lubricants, solvents, soldering equipment, and glues. Additionally, excavation may expose buried hazardous materials resulting from prior use of the site or adjacent property. A substantial portion of the area affected by the proposed project is used for agricultural purposes (refer to section 3.2, Agricultural Resources, for additional detail). Above-ground petroleum storage tanks and pesticide storage facilities are present in many locations and increase the risk of human exposure to potentially hazardous substances. Additionally, storage tanks may leak petroleum products into the soil, where they could migrate to water supplies. Pesticides and fertilizers used for agricultural operations may accumulate in the soil and may over time contaminate surface water and groundwater supplies.

Vectors

This section discusses the prevalence and distribution of vector populations in the project area. The term “vector” is used to denote a carrier of disease organisms. The vector may be purely mechanical, as exemplified by houseflies spreading enteric organisms, or biological, wherein the disease organism multiplies or undergoes change within the vector, as exemplified by the development of encephalitic viruses in mosquitoes. Nuisance organisms are also addressed with the understanding that they are not generally considered disease carriers but do present nuisance effects to humans and domestic animal populations.

Mosquitoes are the primary vectors of concern because they are not only annoying pests, but some are known carriers of human and animal diseases. The presence of standing water provides an ideal breeding environment for mosquitoes. Most adults remain close to their point of origin, but their traveling ability is heavily dependent on physical phenomena such as wind. Some mosquitoes feed on mammalian and other animal hosts, while others feed on fruits and plant nectars. Within the LCR region, encephalitic viruses such as the West Nile virus (WNV), Western equine encephalitis (WEE), and St. Louis encephalitis (SLE), spread by the mosquito

vector *Culex tarsalis* are the most important arboviruses of concern, although dengue fever also may be present.

Mosquitoes become infected with WNV when they feed on infected birds that have high levels of the virus in their blood. WNV was first detected in the United States in the fall of 1999 in New York City. Since 1999, more than 4,000 cases of infection with WNV have been detected in 44 states, including California. Numerous local agencies throughout California routinely conduct surveillance and control of mosquitoes and the diseases they transmit. In 2000, the statewide surveillance program added WNV to the list of diseases monitored. In 2002, WNV was detected for the first time in California in a single human case in Los Angeles (California Department of Health Services [CADHS] 2002). A second human case was discovered in California in October 2003, in Imperial County (University of California at Davis 2003). Evidence of WNV activity has been found in almost all the counties in Arizona (Arizona Department of Health Services [ADHS] 2003a). As of October 2003, two human cases of WNV were discovered in both Arizona (Graham and Pima counties) and in Nevada (Washoe and Nye counties) (Centers for Disease Control [CDC] 2003a and USGS 2003e).

WEE is an important cause of encephalitis in horses and humans, mainly in western parts of the United States and Canada. WEE is carried principally by the *Culex tarsalis* species of mosquito that is associated with irrigated agriculture and stream drainages. Surveillance efforts in Arizona in 2002 detected the WEE virus in 14 out of 28 mosquito tested pools (Yuma County-10, Pinal County-2, Maricopa County-1, and Mohave County-1) (ADHS 2003). As of April 2003, no cases of WEE have otherwise been detected in Arizona. No human cases of WEE have been detected in Nevada (CDC 2001a). Two human cases of WEE were found in California in 1986 and none since then (CDC 2001a).

In the United States, the leading cause of epidemic flaviviral encephalitis is SLE virus. SLE is the most common mosquito-transmitted human pathogen in the United States, and is distributed throughout the lower 48 states. During the summer season, SLE virus is maintained in a mosquito-bird-mosquito cycle. In the western United States, *Culex tarsalis* and *Culex pipiens* are the principal vectors. Surveillance efforts in Arizona in 2002 detected the SLE virus in 14 out of 28 mosquito tested pools (Yuma County-9, Maricopa County-2, Pima County-2, and Pinal County-1) (ADHS 2003). Two human cases of SLE were reported in Maricopa County in 2002 (ADHS 2003). One human case of SLE was reported in California in 1995 (CDC 2001b), and no other cases have been reported to date (CADHS 2003). In 2003, one human case of SLE has been detected in Clark County, Nevada (Clark County Health District 2003). There has never been a human outbreak of SLE in Utah (Utah County Online 2002).

Since 2001, five human cases of dengue fever have been detected in California. Two of those were detected in 2003, one in Alameda County and one in Riverside County (CADHS 2003). Two cases of dengue fever (one confirmed and one presumptive) were reported in 2002 in Coconino County, Arizona (ADHS 2003).

Wildfires

On average, at least one fire occurs every three years that will burn at least 1,000 acres along the LCR, and approximately 95 percent of all wildfires in this area are caused by humans (personal communication, J. Swett 2003). The risk from wildfires along the LCR has increased since the

1 completion of Hoover Dam in 1935 because suppression of annual flood events has limited the
2 ability of native plant communities to regenerate and has created a system where wildfire has
3 become the major disturbance influencing riparian stand development along the river.

4 Fire management along the LCR primarily is the responsibility of three Department of Interior
5 agencies: the BLM, BIA, and the Service. In 1989, the Colorado River Zone (CRZ) was
6 established as an interagency dispatch in order to facilitate fire suppression activities along the
7 LCR using the closest resources available. The CRZ enabled these three agencies to eliminate
8 duplication of personnel and equipment needed to support relatively small programs.
9 Additionally, these agencies signed an interagency agreement forming the Lower Colorado
10 River Wildland Fire Management Group (LCR Fire Management Group) in January 1999. This
11 group has entered into agreements with the State of Arizona and San Bernardino, Imperial, and
12 Riverside counties to mutually provide wildland fire fighting resources to assist in both initial
13 attack and extended attack situations along the river. State and local fire offices can be staffed
14 up or additional equipment can be supplied to the local entities. Currently, local fire
15 organizations do not participate in fire suppression along the LCR.

16 Prescribed burns, which are intentionally set fires, may be used to suppress active fires, to
17 reduce fuel loads, clear vegetation, or to establish or enhance habitat. Prescribed burns have
18 been used by the LCR Fire Management Group as a fire suppression technology along the LCR
19 (personal communication, J. Swett 2003) and have been used by the Service to establish suitable
20 habitat conditions for particular species. Five such prescribed burns took place along the LCR
21 from 2000 to 2003, at Lake Havasu NWR, Mittry Lake, and Imperial NWR (personal
22 communication, D. Repass 2003). Prescribed burns also are commonly used by farmers to clear
23 fields. For example, approximately 11,490 acres of agricultural land were burned within the
24 MDAQMD¹ in 2002 (MDAQMD 2002). Of those acres, approximately 7,000 were burned by the
25 California Department of Forestry and Fire Protection personnel within the city of Blythe in
26 Riverside County (MDAQMD 2002).

27 *Bird-Aircraft Strike Hazards*

28 Bird-Aircraft Strike Hazards (BASH) can result in damage to aircraft and potentially the loss of
29 human life. Approximately 95 percent of BASH incidents occur below 2,000 feet above ground
30 level (AGL); 70 percent of these occur below 500 feet AGL (Murton and Wright 1968). More
31 recent unpublished studies confirm these findings (U.S. Navy 1999). The species involved in
32 BASH incidents are generally the common species that occur near airfields. Large, slow-flying
33 birds such as raptors (hawks and owls); large wading birds (herons, egrets, and ibis); gulls; and
34 waterfowl (ducks and geese) are more likely to be hit, and also are more likely to do substantial
35 damage to aircraft due to their mass.

36 Waterfowl often congregate at or near ponds and other water bodies. Smaller birds that often
37 form large flocks (for example, European starling, blackbirds, and some shorebirds) can pose a
38 threat to aircraft and aircrews. Even a single small bird can cause significant damage to an
39 airplane; a flock makes collisions more likely and damage more severe. Resident adult birds

1 The MDAQMD encompasses the desert portion of northern San Bernardino County, as well as the Palo Verde Valley in
Riverside County.

may learn to avoid planes, but young birds and migrants may be more prone to collision (Blokpoel 1976).

The joint-use airfield shared by the Marine Corps Air Station and Yuma International Airport (MCAS Yuma/YIA) is the one most likely to be affected by the proposed action because its Accident Potential Zone extends over the lower Gila River near its confluence with the LCR, which is in the planning area.

3.8.1.2 Muddy River/Moapa Valley and Virgin River

The discussions of hazardous materials, vectors, and wildfires in section 3.8.1.1 are generally applicable to this off-site location. No airports are located in the immediate vicinity of these rivers. Reclamation and the Las Vegas BLM field office are responsible for fire suppression efforts along the Virgin and Muddy rivers.

3.8.1.3 Bill Williams River

The discussions of hazardous materials, vectors, and wildfires in section 3.8.1.1 are generally applicable to this off-site location. No airports are located in the immediate vicinity of these rivers. Fire management practices for the Bill Williams River region are as described for the LCR, and are the responsibility of the LCR Fire Management Group.

3.8.1.4 Lower Gila River

The discussions of hazardous materials, vectors, and wildfires in section 3.8.1.1 are generally applicable to this off-site location. The Accident Potential Zone for the MCAS Yuma/YIA is not within the boundary of this conservation area, nor are any other airports. The Arizona State Land Department and BLM share primary responsibility for fire management on the lower Gila River, with the exception of the small municipalities located along the river.

3.8.2 Environmental Consequences

Significance Criteria

The proposed action would result in significant impacts if it would result in any of the following:

- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions associated with operations and/or maintenance;
- result in conditions that would lead to a substantially increased population of disease or nuisance vectors;
- result in a substantially increased risk of wildland fires; or
- be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport or a private airstrip, and result in a safety hazard.

3.8.2.1 *Alternative 1: Proposed Conservation Plan*

Hazardous Materials

Impact HAZ-1: The use of pesticides, lubricants, fuels, and other hazardous materials during construction, operations, and maintenance could result in localized spills, which could create a hazard to the environment. During construction and some maintenance activities, heavy equipment and vehicles would be present in the project area. Most of this equipment requires a number of petroleum products such as fuel, hydraulic fluids, and lubricants for effective operation. Fuel replenishment would be required daily for most of the heavy equipment. Lubricant and hydraulic fluid changes and replenishment would be required less frequently. Typically, service trucks would deliver these types of fluids on site and perform the necessary fuel and oil transfers. Diesel fuel also would be used to operate some irrigation pumps, and refueling would be required periodically. The risk of small fuel or oil spills is considered likely. Accidental spills would result in a *less than significant* impact to public health and the environment because the spills would be small and localized, most construction would be located in unpopulated areas, and BMPs would be implemented to minimize the potential for accidents to occur (refer to section 3.0 for examples of typical BMPs). All spills would be cleaned up in accordance with permit conditions.

Vectors

Impact HAZ-2: The increase in riparian and backwater areas could result in an increase in vectors. Vectors, such as mosquitoes, are attracted to pools of water, such as ponds and backwaters, as well as riparian vegetation. The amount of aquatic land cover type that would be established and that would be suitable as vector habitat, however, is small in relation to the overall size of the planning area. The Conservation Plan would result in the establishment of 5,940 acres of cottonwood-willow, 1,320 acres of honey mesquite, 512 acres of marsh, and 360 acres of backwaters. For purposes of comparison, the LCR MSCP HCP indicates that approximately 126,000 acres of woody riparian vegetation and 12,000 acres of marsh are present in the planning area, and a backwater study of Reaches 3, 4, 5, and part of 6 identified 461 backwaters, with 7,911 acres of open water [GEO/Graphics 2000]. Moreover, the siting criteria for conservation sites include consideration of the likelihood for mosquitoes on a site to become a vector control or nuisance problem based on proximity to urban areas and mosquito production potential. The Conservation Plan includes an integrated pest management approach that would minimize potential impacts from vectors, including coordinating the design and management of conservation areas with appropriate health officials; incorporating, to the extent practicable, design, and management concepts to help reduce the likelihood that conservation areas do not produce mosquitoes in numbers that could cause public health or nuisance concerns; and providing access to conservation areas to appropriate health officials to monitor mosquito populations. The proposed action also would result in an increase in fish and bird populations that eat insects. Impacts would be *less than significant* because the proposed action would not lead to a substantially increased population of disease or nuisance vectors.

Wildfires

Impact HAZ-3: Construction activities could cause wildfires. The fuel tanks on board some of the equipment used for construction activities contain fuel volumes ranging from 100 to 500

gallons. Accidental ignition could result in a fire, which, depending on the location, could spread. All such equipment is required to have fire suppression equipment on board or at the work site. The risk of a vehicle fire is considered unlikely, and the impact would be *less than significant* because it would not result in a substantially increased risk of wildfire.

Impact HAZ-4: Fire used as a construction and maintenance tool could escape control and become a wildland fire. Prescribed burns could be used to establish marshland approximately every 7-8 years. A less likely use of fire is to clear existing vegetation or, alternatively, to burn vegetation removed by mechanical methods. The impact would be *less than significant* because fires would be conducted by experienced personnel in accordance with established practices; therefore, the risk of wildland fires would not be substantially increased.

Bird-Aircraft Strike Hazards

Impact HAZ-5: Conservation area establishment actions implemented within an Accident Potential Zone of an airport or near a private airstrip could cause a comparatively minor increase in bird populations. Conservation actions could either increase or decrease local concentrations of birds, depending on initial site conditions and the type of land cover type establishment that would be implemented. For example, agricultural fields can attract large flocks of starlings, and in such cases, conversion to cottonwood-willow may actually reduce the number of birds in the air where they could pose a risk to aircraft. Conversely, the establishment of marsh or open-water areas in existing desert scrub would probably increase the numbers of certain types of birds, especially waterfowl, relative to existing agricultural conditions. Within an Accident Potential Zone of an airport or near a private landing strip, an increase in the overall number of birds would be a *less than significant impact* to bird-airstrike hazards since construction associated with the Conservation Plan would comply with FAA guidelines, only a small amount of terrestrial land cover types and backwaters would be established in comparison with that which already exists (refer to the discussion under Impact **HAZ-2** above), and it would not be concentrated in one location. In particular, the MCAS Yuma/YIA already is adjacent to the lower Gila River, which contains riparian forest and marshes that already supports a variety of bird species, and the establishment of a portion of the backwaters in this area would not appreciably increase the risk of bird-airstrikes.

Mitigation Measures

No mitigation measures are required because no significant impacts would occur.

Residual Impacts

Residual impacts are those that would occur after the implementation of mitigation measures to reduce an impact. No mitigation measures are required; thus, no residual impacts would occur.

3.8.2.2 Alternative 2: No Action Alternative

Under the no action alternative, it is likely that conservation measures similar to those included in the proposed action would be implemented since compliance with the ESA still would be required for the covered actions, although some conservation could occur in the off-site conservation areas (as described in section 3.8.2.4 below), as well as along the LCR. **Impacts**

1 **HAZ-1 through HAZ-5** apply to this alternative, although **Impact HAZ-5** would not apply to
2 conservation implemented in the off-site conservation areas since none of these areas are
3 located within the Accident Potential Zone of an airport or near private airstrips. To the extent
4 that the agencies undertaking the covered actions proceed with ESA compliance through
5 section 7 consultations instead of the section 10 permitting process, there may be a reduced
6 number of covered species because unlisted species will not be included. This would also likely
7 result in a smaller amount of conservation area being established. The same types of impacts
8 would occur as described for the proposed action, but the magnitude of some impacts would
9 differ.

10 A smaller amount of conservation area would be established under this alternative than under
11 the proposed action, but more, smaller mitigation sites would be developed, requiring more
12 infrastructure (access roads and irrigation pipelines/canals and pump facilities). Additionally,
13 since each individual project would establish its own mitigation sites, it is likely that more
14 maintenance and storage facilities would be required. Thus, the chance of hazardous releases
15 could increase in comparison to the proposed action. There also is a greater likelihood that the
16 conservation sites would be located close to developed areas, increasing risks to the public from
17 accidental releases of hazardous materials. The impacts generally would be as described under
18 **Impact HAZ-1**, but the potential for the impacts to occur would be slightly greater than under
19 the proposed action.

20 As described above under **Impact HAZ-2**, aquatic land cover type establishment could result in
21 an increase in vectors. A smaller amount of conservation area would be created, resulting in
22 less potential for such an increase to occur. There is a greater likelihood that the conservation
23 sites would be located close to developed areas, however, increasing risks to the public from
24 vector. Additionally, in the absence of a comprehensive Conservation Plan, it is not known
25 whether an integrated pest management plan would be implemented. Impacts associated with
26 vectors could be greater than for the proposed action.

27 The no action alternative would not include the unified approach to wildfire suppression that
28 would occur under the proposed action. Thus, impacts associated with **Impact HAZ-3** would
29 be considered greater under this alternative.

30 **Impacts HAZ-4 and HAZ-5** would be similar to the proposed action, although since a smaller
31 amount of conservation area would be created, the risks would decrease proportionately.

32 *Mitigation Measures*

33 No mitigation measures are required because no significant impacts would occur.

34 *Residual Impacts*

35 Residual impacts are those that would occur after the implementation of mitigation measures to
36 reduce an impact. No mitigation measures are required; thus, no residual impacts would occur.

3.8.2.3 *Alternative 3: Listed Species Only*

Impacts

Impacts HAZ-1 through HAZ-5 apply to this alternative. The same types of impacts would occur as described for the proposed action, but the overall magnitude would be lessened since a smaller amount of conservation area establishment would occur.

Mitigation Measures

No mitigation measures are required because no significant impacts would occur.

Residual Impacts

Residual impacts are those that would occur after the implementation of mitigation measures to reduce an impact. No mitigation measures are required; thus, no residual impacts would occur.

3.8.2.4 *Alternative 4: Off-Site Conservation*

Impacts

Impacts HAZ-1 through HAZ-4 apply to this alternative. The key difference between this alternative and the proposed action is that the conservation measures would be implemented at different locations, with the exception of conservation measures directly related to fish including backwater creation, which would be implemented in the planning area, as described for the proposed action. **Impact HAZ-5** would not apply to this alternative since none of the off-site conservation areas are located within the Accident Potential Zone of an airport or near private airstrips.

Mitigation Measures

No mitigation measures are required because no significant impacts would occur.

Residual Impacts

Residual impacts are those that would occur after the implementation of mitigation measures to reduce an impact. No mitigation measures are required; thus, no residual impacts would occur.